THE UPPER TENNESSEE RIVER
EPA Watershed Initiative Grant Proposal
NARRATIVE

An Ecological Challenge

The Upper Tennessee River (UTR) Watershed, located in the heart of the southern Appalachians, in Virginia, Tennessee, and North Carolina, is a center of biological richness and rarity. The Nature Conservancy and the Association for Biodiversity Information document that the Upper Clinch River, including the Powell River tributary, **surpasses all other watersheds in the Continental United States in species richness and degradation.** The adjacent Holston watershed has also received a high ranking. 48 imperiled and vulnerable fish and mussel species, including 21 that are federally listed as endangered or threatened have been identified in these watersheds. Other important imperiled species include bats, cave invertebrates, plants, and amphibians. Some of these species are **globally unique** (see map: "Hot spots for Aquatic Species").

Intensive use of the land for agriculture, mining, logging, and urban expansion (storm run-off and wastewater discharge) have been identified as **contributing to the degradation of watershed health** and threaten biodiversity in the 5,686 square miles that constitute the Upper Tennessee River watershed (see map: "Major Subwatersheds").

Time is running out. Research shows that many imperiled species populations are declining or being lost at an alarming rate, and our water quality is declining in many places. In 2002 the Virginia Department of Environmental Quality proposed a 39% increase in the number of stream miles listed as impaired and needing treatment over the number listed in 1998. A visual comparison of the attached maps, "Impaired Waters, 1998 303(d) Listed Waters", and "Impaired Waters, 2002 303(d) Listed Waters", shows the increase in 303(d) listed streams.

A Grassroots Response

In 1997 the US Environmental Protection Agency (EPA) undertook the Clinch River Watershed Ecological Risk Assessment (one of 5 nationwide). This defined the ecological challenges and potential solutions for local communities and concerned organizations in the UTR watershed.

Citizens founded **The Upper Tennessee River Roundtable** (Roundtable) in June1999 in response to these ecological challenges. The Roundtable is **a true grassroots organization**. Any citizen coming to a biannual meeting is a voting member. Over 500 citizens participate. The Board of Directors of the Roundtable has representatives of **26 different stakeholder groups**, and provides a forum for seeking consensus on water quality issues.

The Roundtable invited all stakeholders in the watershed to help **develop strategies for addressing the water quality impacts in the watershed**. Public meetings were held throughout the watershed, and the resulting strategies were organized into 20 issue areas. The Roundtable **prioritized the strategies** at a facilitated public meeting in April 2000, and compiled the results into a **Strategic Plan**, which was published in July 2000. The Strategic Plan, posted on the Roundtable website: www.uppertnriver.org, serves as a focus for our water quality efforts.

Over 80 agencies and organizations partner with the Roundtable to implement the Strategic Plan. Our partners serve on the Organization Coordinating Group (OCG), where their technical expertise and financial resources are coordinated to accomplish Strategic Plan goals.

With the help of the OCG, a detailed **Business Plan** was completed in July 2001. It outlines a multi-state 5-year plan for implementing the highest priority strategies in the Strategic Plan and establishes water quality improvement goals. $5.25 million is needed over 5 years to carry out the plan. The Roundtable has been actively seeking funding to support this plan, and is working with partners and local Coalitions to

implement portions of the plan as funding opportunities arise. In October 2002 a **Coordinator** was hired, however current funding will only employ the Coordinator for 6 months to a year.

Regardless of fund limitations, the Roundtable, it's partners, and local Coalitions have many early **success stories** to report. For example, **the Guest River Project**, a locally led watershed effort, has been designated a National Case Study Watershed because of their many innovative accomplishments. Other success stories include: development of incentives for the **Remining and Reclamation of Abandoned Mined Land** to achieve environmental goals at a low cost; establishing a **Conservation Forestry Program** that provides an annual dividend payment to landowners in exchange for the right to sustainably manage their forest land; the **Holston Citizen Water Quality Monitoring Project**, involving over 100 local citizens in water quality monitoring; the **Stormwater Management Project**, through which public officials developed locally appropriate model ordinances for stormwater management. There are many more, for example: **The Stream Team**, **Streambank Stabilization Demonstrations**, **Sustainable Forestry Workshops**, **Wetlands Recharge for addressing Acid Mine Drainage**, and innovative Best Management Practices (BMPs), such as, **Solar Pumps** for alternative pasture water sources.

Our local involvement and focused efforts have led to this watershed taking regional leadership in the adoption and establishment of riparian buffers, stream fencing, and other **BMPs on agricultural land**.

In response to EPA's request for proposals, a meeting of the OCG (Roundtable Partners) was held to choose specific projects from our Business Plan that will meet EPA's Watershed Initiative objectives and accomplish Roundtable goals. All **selected projects have these characteristics**: **strong local support**; **firm partner commitment**, **immediate applicability** (have a written plan and/or are started and need additional funds for success), **measurable water quality benefits**, and **an exportable product**.

We are operating with a sense of urgency due to the immediate threats to our imperiled species. Every effort is being made to implement strategies as quickly as possible. Our early success is based upon

grassroots support, volunteerism, and strong partnerships, however the funds we have to carry out effective strategies are very limited. The **funding** requested in this proposal will **help to ensure critical water quality improvements**.

The attached letters attest to the support and commitment of our Partners and Coalitions. We invite you to contact them to learn more.

A Watershed Plan for Making A Difference

This proposed **Watershed Plan** consists of a brief **Narrative Description** of our proposed projects, which is below, and a combined **Budget and Schedule**, which is attached. A **Projects map** is attached and shows some of the project locations. Detailed documentation supporting this plan is included in our Strategic Plan, Business Plan, and Individual Project Plans (all are available upon request). The attached **"Partners" list is as a key to the abbreviations** used in the Watershed Plan for organization names.

The Upper Tennessee River Roundtable, a 501c(3) non-profit organization, is the applicant for this grant. Our contact for this grant proposal and manager for any resulting grant agreement is:

Brian F. Schmidt, Coordinator
Upper Tennessee River Roundtable
739 Songbird Lane
Chilhowie, VA 24319
Phone: (276) 646-2892
Fax: (276) 676-3819
Email: bschmidt@smyth.net

Mr. Schmidt has 20 years technical and administrative experience helping Coalitions improve water quality.

Due to differences in government structures and state agency support, the design and implementation of Roundtable strategies must vary from state to state. For this reason, the Roundtable Business Plan and this Watershed Plan, a subset of the Business Plan, **list projects by state.** Funding for project support including administrative costs, and audit costs are included and will be a portion of funds received.

Virginia Projects

Sawdust Utilization Demonstrations and Batie Creek Restoration: Batie Creek, a severely impacted stream, will be improved and habitat for the Lee County Cave Isopod, a federally endangered species, will be restored through removing sawdust that is polluting this highly significant karst area. The sawdust will be used for mined land reclamation to demonstrate how sawdust will improve soil restoration and sequester carbon. Further project efforts will focus on making the sawdust into a marketable product through composting with chicken manure. The sawdust, a pollutant on karst, will be shown to be a resource for improved mined land reclamation and for composting. A unique partnership of the Lumber, Coal, and Poultry Industries and the Virginia Cave Board and Environmental Organizations supports this project. A Project plan and matching funds are in place.

Stormwater - Toxic Spill Protection Demonstration: In August 1998 a truck accident released toxic chemicals into the river system in Tazewell County, Virginia, killing one of the two last known remaining reproducing populations of the federally endangered tan riffleshell mussel in the Clinch River at Cedar Bluff. This project will protect the last remaining population in Indian Creek from toxic spills and stormwater, and will develop and demonstrate the technology for containing toxic waste spills in stormwater structures. Stormwater management structures will be constructed at bridges to treat roadway stormwater, and will be designed to contain hazardous waste in the event of a spill. Emergency Management Teams will be equipped and trained to manage the structures during spills. This project will support restoration efforts associated with the 1998 spill. The spill Restoration Plan can be viewed at: http://unionid.smsu.edu/Documents/Draft.certus.RCDP.pdf.

Holston River Mussel Decline Investigation and Experimental BMPs for Protection: An investigation to find the source(s) of the significant decline of mussel populations in the Middle Fork of the Holston River will be supported. Experimental BMPs will be applied and studied to explore alternative methods to control

grazing patterns and reduce pollution. This work will support the implementation of the Three Creeks TMDL in this watershed as well as proactively address the sources of impacts on the newly listed segments of the Middle Fork of the Holston River. Known mussel populations will be protected through the application of new BMPs designed to distribute grazing and maintain pasture cover to reduce pollution. Efforts will focus on reducing pollution from lands having the greatest negative impacts on the mussel beds.

Public Outreach Demonstration (watershed wide): Professional video equipment will be purchased and used to develop B-roll film of Coalition Water Quality Efforts. This will save local television stations a great deal of time and money traveling to field locations to film our stories and make our stories more attractive for use because they will be readily available at no cost. Local media personnel will provide training for using the equipment to produce useable coverage. Public Information specialist services will be contracted to provide assistance to Coalitions throughout the watershed with gaining TV coverage of their efforts. This demonstration will support all projects and Coalitions in the UTR watershed.

Export Guest River Project Success: Successful techniques used in the Guest River Project will be identified and exported through the development of training materials for Coalitions.

Citizen Monitoring Training: The Citizen Monitoring Model developed in the Holston Watershed will be exported through training and follow-up provided in the Clinch and Powell watersheds.

Stormwater Management Demonstrations: Low impact development practices, which are not widely understood in the area, will be demonstrated in key locations to promote their use.

Low Impact Development Conference: A conference will be held to encourage networking and provide training in response to interest identified through the recently completed Stormwater Management Project.

Export Target Projects: Target projects will be exported to other local Coalitions.

Project Management: The Roundtable Coordinator will provide the coordination, training, and support needed to implement the grant agreement.

Tennessee Projects

Bacterial Source Tracking Research: Research will be conducted on Sinking Creek (303(d) listed stream) to identify potential sources of microbial pollution based on watershed land-use patterns and population demographics. ETSU (East Tennessee State University) will develop a monitoring plan, bracket suspected bacterial sources, and determine the relative contributions to microbial contamination and water quality degradation. They will develop and validate cost effective methods to identify sources of microbial contamination (wildlife, production animal, pets, or humans) by using a combination of land-use analysis, bacteriological indicators, antibiotic resistant profiles in fecal streptococci and chemical water quality indicators. Pollution sources identified will provide targeting areas for the development and implementation of reduction strategies.

Septic Tank Effluent Pump (STEP) Sewer Demonstration: This project will demonstrate an innovative and cost-effective method of eliminating polluted runoff and ground water from selected sites, and reduce the levels of bacteria, nutrients, solid waste and hydrocarbons in the surface and ground water of the immediate Sinking Creek Watershed and Sinking Creek (303(d) listed stream). Professional education programs promoting the use of STEP sewer systems to solve costly sewage disposal problems will be developed and implemented. Workshops for local citizens, developers, and public officials will be held in areas that are not suitable for septic tank and drain field systems and where gravity sewage collection is not practical.

Buffer Easement Trust: The Appalachian RC&D Council is facilitating the startup of a land trust to serve the Northeast Tennessee area. Riparian corridor protection is a top priority for this initiative. In recent years development pressure along trout producing waters has risen at an alarming rate, threatening the resource. Riparian easements will be secured where development threats are greatest and where agriculture impacts are most severe. Local partners will assist with prioritizing area for strategic implementation. Local funds

will be invested. Revenues and matching funds will be used to secure easements, allowing the investment to build as a permanent endowment.

Kyle's Ford Freshwater Education Center: Kyle's Ford on the Clinch River is one of the most important freshwater mussel shoals on the planet. The Nature Conservancy is purchasing an 850 acre preserve surrounding this global treasure which includes a structure that will be utilized as an educational center for the study, research, training and celebration of the biodiversity of the Clinch and Powell rivers.

Riparian Corridors Protection Model: Natural riparian corridors will be established and/or maintained along the waterways within the project area. Technical and financial assistance will be provided to landowners within the Clinch and Powell drainage in Hancock County for the implementation of agricultural and streambank protection BMPs.

Clinch-Powell Trust Conservation Easement Model: A model conservation easement program will be developed. Methods for persuading landowners to establish and/or maintain natural riparian corridors along waterways will be tested. The project goal is to prevent cattle access to shoals and river, stabilize streambanks, provide in-stream habitat, and filter sediment runoff. The Clinch-Powell Trust will be dedicated to easements on the main stem reaches of the Clinch and Powell River focusing on the critical Key Shoals area. Project effectiveness will be measured and studied.

Sycamore Creek Best Management Practice Proactive Demonstration: Technical and financial assistance will be provided to landowners within the Sycamore Creek watershed drainage in Claiborne County for implementation of practices targeted to reducing and preventing impairments. Sycamore Creek has been targeted for assistance to prevent its placement on the 303(b) report. Water quality data indicates a need for immediate action to stop the trend of water quality degradation. An inventory and plan will be developed, and BMPs will be designed that meet project objectives while addressing landowner needs.

Mussel Friendly Bridge Design Demonstration at Kyle's Ford: The TN Department of Transportation (TDOT) has scheduled the Clinch River Bridge at Kyle's Ford for replacement. This bridge is located approximately 200 yards upstream from the Kyle's Ford mussel shoal. A consultant will be contracted to work with TDOT on bridge abutment and construction plans to minimize the impacts of the construction on this globally significant shoal.

Stormwater Training and Demonstration: 6 workshops will be held, and one demonstration will be completed to help communities comply with EPA Phase II Guidelines. Training began with two Stormwater and Sediment Control workshops held in 2002. 100 planners, planning commission members, elected officials, officials from municipal building, public utilities and street departments attended.

Clinch-Powell Coalition Training and Demonstration: Two training approaches will be developed and used to train Coalitions in the Clinch-Powell watershed. Training for watershed groups will encourage a broader community based mindset, while training for community groups will encourage the addition of watershed protection activities to their mission. This will help to broaden the vision of each type of Coalition and improve their effectiveness. Storytelling tools will be developed. Water quality related stories will be developed and demonstrated and will be exported to Coalitions throughout the UTR watershed.

Holston Coalition Training: 6 active partnerships and alliances will receive leadership training and support to assist them with successfully focusing their efforts.

Project Management: Part time staff will be employed to meet the critical need for coordination, leadership support, and technical assistance for all Tennessee projects. The Appalachian RC&D will provide computer, printing, office space, vehicle and related services.

North Carolina Projects

Stream and Wetland Restoration Demonstration: 3 acres of wetland restoration and 2,000 feet of stream restoration along Dutch Creek will be completed to serve as a public demonstration. This will support and complement an effort to restore approximately 1.5 miles of degraded stream in the watershed.

Export Stormwater Model: A brochure and video will be produced to export a model stormwater project in Banner Elk. The $500,000 project is in its final phase of construction. It will collect the runoff from approximately 65 acres in the town of Banner Elk and temporarily store the runoff in underground vaults where silt, trash, and floatable debris will be removed. Stormwater will flow to an artificial wetland for treatment before it enters Shawneehaw Creek, a threatened trout stream. The project demonstrates floodwater control, and pollutant removal (particularly salt and slag used for de-icing streets and sidewalks in winter). The training materials will be used to export this technology throughout the watershed.

Research to Standardize Citizen Monitoring: Research will be conducted to standardize citizen monitoring so that a useful database can be developed. The existing Citizen Monitoring Program lead by the NC State Cooperative Extension in the Watauga River Watershed will be examined. The results of this research will be exported to Coalitions throughout the watershed.

Coalition Training and Support: Each of two Coalitions: the Watauga River Stream Team, and the Watauga River Partners, is using a different approach to preserving and improving the health of the watershed. The Coalitions will be led to investigate the benefits and risks of each approach. This will serve to train and strengthen the effectiveness of each group. The Blue Ridge RC&D will provide support for project implementation.